



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,635	03/28/2006	Yasunori Hattori	2950-060834	9011
28289	7590	10/28/2009	EXAMINER	
THE WEBB LAW FIRM, P.C.			SAVAGE, JASON L	
700 KOPPERS BUILDING			ART UNIT	PAPER NUMBER
436 SEVENTH AVENUE			1794	
PITTSBURGH, PA 15219				
MAIL DATE		DELIVERY MODE		
10/28/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/573,635	HATTORI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	JASON L. SAVAGE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 23 June 2009.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,3,4 and 7 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1,3,4 and 7 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maki'268 (US 2001/0016268) in view of Maki'089 (US 5,789,089) further in view of Iwase et al. (JP 2003-145278 English Machine Translation).

Maki'268 teaches hot-dipped aluminum coated steel sheet which has excellent properties after welding (abs). Maki'268 further teaches that the Al coating comprises Si content of 2 to 13% (abs). Maki'268 also teaches that the bath used to form the Al-Si coating layer contains Fe in an amount up to 2% (par[0090]). Maki'268 does not teach the resultant Fe content in the formed coating layer.

Maki'089 teaches hot-dipped aluminum coated steel sheet which has excellent properties including corrosion resistance and heat resistance (col. 1, ln. 8-14). Maki'089 further teaches that the Al coating comprises Si content of 2 to 15% (col. 7, ln. 42-55). Maki'089 further teaches that while the Fe content should be limited, it is very difficult to completely eliminate Fe from the coating layer due to it unavoidably mixing in the bath and is generally present in an amount between 0.2% and up to maximum of 1.2% (col. 7, ln. 57-67). Maki'089 teaches the lower Fe content in the coating is about 0.2% and the lower limit on the concentration of Fe in the bath is 0.5% and the upper limit in the coating is 1.2% and upper limit in the bath is 3.5%.

As such, one of ordinary skill would expect that a concentration between the lower and upper limits such as a bath concentration of 2% Fe as recited by Maki'268 would produce a coating concentration of Fe somewhere in the range of Fe coating concentrations around approximately 0.7%. In the alternative, it would have been obvious to one of ordinary skill in the art to have applied the teaching of Maki'089 to the invention of Maki'268 and limited the Fe content in the coating to less than 1.2% in order to insure the corrosion resistance in the coating is maintained. As such, the prior art would overlap and thus meet the claim limitations wherein the Fe content is between 0.5-1.2%.

Regarding the limitation that the Al-coated steel sheet is spot welded to an aluminum sheet, the cited prior art does not exemplify an embodiment meeting the claim limitations. However, Iwase teaches spot welding aluminum-plated steel sheets and aluminum sheets are known (abstract). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have spot welded the hot-dipped aluminum coated steel sheet of Maki'268 as modified by Maki'089 which has excellent properties after welding to an aluminum sheet since composites of aluminum and aluminum-coated steel sheets are conventional materials joined to form a composite structures by welding.

Regarding the limitation that an area ratio of the joint boundary being 90% or less of Al-Fe, since Maki'268 teaches the same materials and aluminum coating composition containing Si and Fe, the claimed Al-Fe area ratio would fall within the claimed range of 90% or less.

Regarding the limitation that the coating contain the claimed amount of N and an N-enriched surface of the steel substrate, Maki'268 teaches the steel substrate may comprise up to 0.010% N (par[0016]). Maki'089 teaches that a steel containing N reacts with the Al coating layer to form a diffusion inhibiting N-enriched layer of AlN at the interface between the steel substrate and coating layer. (col. 10, ln. 26-35). Although the references do not recite the diffusion inhibiting layer has an N-enriched surface being 3% or more N, since Maki'268 teaches an N concentration in the steel within the range claimed by Applicant and Maki'089 teaches it forms a diffusion inhibiting N-enriched surface, it would be reasonable to assume the N concentration in the N-enriched surface would fall within the claimed range also.

Regarding claims 3-4 and 7, Iwase teaches that the Aluminum sheet is JIS5056 Aluminum alloy plate (par[0003]) which contains a maximum of 0.5% Fe and Mg of 4.5-5.6% and Si of 0.3% or less.

### ***Response to Arguments***

Applicant's arguments filed 6-23-09 have been fully considered but they are not persuasive.

Applicant argues that Maki'268 and Maki'068 teach away from the inclusion of Fe in the plating layer. Applicant points to disclosures in the references such as Maki'268 teaches Fe as being an impurity and Maki'089 teaches the smaller the amount of Fe, the better.

However, although Maki'268 teaches that Fe in the plating bath is considered an impurity which is supplied thereto from plating apparatuses in the bath and the steel sheets (par[0122]), Maki'268 does not teach any steps taken to remove the Fe from the bath or steps to prevent the formation of Fe within the bath. As such, even though the description of Fe as an impurity may suggest to one of ordinary skill in the art that Fe content should be limited, one following the teachings of Maki'268 would ultimately end up with a coating layer containing an alloy of Si and Fe with Al. Applicant asserts that assuming the 'small Fe content' in Maki'268 leads to a coating layer of between 0.5 and 1.2% is entirely speculative and appears contrary to the disclosure of Maki'268. However, when the 'small Fe content' in the plating bath is 2%, one would expect the Fe content to be in a substantial and measurable amount. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on *prima facie* obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977). Applicant has provided no evidence or reasoning as to why the plating bath containing 2% Fe would not have an Fe content in the coating layer that falls within the range.

Applicant further asserts that both Maki documents appear to guard against the inclusion of any Fe in the coating layer. While both appear to clearly teach that the Fe content should be limited, neither appear to explicitly recite that Fe cannot be present. To the contrary, Maki'089 teaches that it is very difficult to completely eliminate Fe from the coating layer due to it unavoidably mixing in the bath (col. 7, ln. 57-67) and Maki'268 teaches that Fe is also present in an amount of approximately 2% in the bath. Maki'089 further recites that a lower (emphasis added) limit in the bath is set to 0.5%, and that generally a minimum of 0.2% Fe is contained in the coating which would further teach against Applicant's assertion that Maki guards against the inclusion of any Fe in the coating layer.

Maki'089 teaches the lower Fe content in the coating is about 0.2% wherein the lower limit on the concentration of Fe in the bath is 0.5% and the upper limit in the coating is 1.2% with the upper limit in the bath being 3.5%. As such, one of ordinary skill would expect that a concentration between the lower and upper limits such as a bath concentration of 2% Fe as recited by Maki'268 would produce a coating concentration of Fe somewhere in the range of Fe coating concentrations around approximately 0.7%.

As set forth above, Applicant has provided no evidence that the coating would not have an Fe content within the range claimed.

Applicant further argues that the Maki references do not teach the contribution of Fe concentration to the formation of an unalloyed region during spot welding. However, it is the position of the Examiner that Maki'268 teaches the formation of an Al-Fe-Si

alloy coating which would contain Fe in an amount within the range claimed by Applicant such as approximately 0.7%. The thus formed aluminum-plated steel sheet of Maki'268 would exhibit the same favorable control of the Fe-Al alloy layer during spot welding of an Al sheet to the Al-coated as asserted by Applicant.

Applicant also asserts that the Al-Fe binary alloy layer to whole Al/Fe joint boundary would not meet the claim limitations asserting that it is incorrect and unsupported to state Maki'268 teaches a similar composition containing Si and Fe. However, given the reasoning set forth above, it is not clear why the assumption that the same coating composition would be formed is in error. Applicant has provided no proof supporting the assertion that the composition would not be the same.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Savage/  
Examiner  
10-23-09

/JENNIFER MCNEIL/  
Supervisory Patent Examiner, Art Unit 1794